

AMENDMENTS TO THE CLAIMS

1-4. (Canceled)

5. (Currently amended) An arrayed waveguide grating, comprising:
at least one ~~or plural~~ input ~~waveguides~~ waveguide for inputting signal lights;
a plurality of output waveguides for outputting said signal lights;
a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~
a predetermined waveguide length differences difference;
an input slab waveguide connecting an input end of said channel waveguide array to
said at least one input ~~waveguides~~ waveguide; and
an output slab waveguide connecting an output end of said channel waveguide array
to said plurality of output waveguides, said output slab waveguide ~~having~~ including a core
layer disposed therein for propagating light therethrough, said core layer being partly cut off
in selected ~~or all~~ paths therein, which interconnect said channel waveguide array and said
plurality of output waveguides, and a cladding layer disposed in cut regions of ~~the~~ said core
layer and on opposite sides of ~~the~~ said core layer, said cut regions in ~~the~~ said selected paths
having including cut lengths set to predetermined values in ~~the~~ a direction in which ~~the~~ said
signal lights propagate, depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~
said selected paths.

6. (Currently amended) An arrayed waveguide grating, comprising:
a plurality of input waveguides for inputting signal lights ~~having~~ comprising different
wavelengths ~~each other~~;
at least one ~~or plural~~ output ~~waveguides~~ waveguide for outputting said signal lights;
a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~
a predetermined waveguide length differences difference;
an output slab waveguide connecting an output end of said channel waveguide array
to said at least one output ~~waveguides~~ waveguide; and

an input slab waveguide connecting an input end of said channel waveguide array to said plurality of input waveguides, said input slab waveguide ~~having~~ including a core layer disposed therein for propagating light therethrough, said core layer being partly cut off in selected ~~or all~~ paths therein, which interconnect said channel waveguide array and said plurality of input waveguides, and a cladding layer disposed in cut regions of ~~the~~ said core layer and on opposite sides of ~~the~~ said core layer, said cut regions in ~~the~~ said selected paths ~~having~~ including cut lengths set to predetermined values in ~~the~~ a direction in which ~~the~~ said signal lights propagate, depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~ said selected paths.

7. (Currently amended) An arrayed waveguide grating, comprising:

at least one ~~or plural~~ input ~~waveguides~~ waveguide for inputting signal lights;

a plurality of output waveguides for outputting said signal lights, said plurality of output waveguides ~~having~~ including at least one core layer disposed therein for propagating light therethrough, said core layer being partly cut off, and a cladding layer disposed in cut regions of ~~the~~ said core layer and on opposite sides of ~~the~~ said core layer, said cut regions ~~having~~ including cut lengths set to predetermined values depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~ said plurality of output waveguides;

a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~ a predetermined waveguide length differences difference;

an input slab waveguide connecting an input end of said channel waveguide array to said at least one input ~~waveguides~~ waveguide; and

an output slab waveguide connecting an output end of said channel waveguide array to said plurality of output waveguides.

8. (Currently amended) An arrayed waveguide grating, comprising:

a plurality of input waveguides for inputting signal lights ~~having comprising~~ different wavelengths ~~each other~~, said plurality of input waveguides ~~having~~ including at least one core layer disposed therein for propagating light therethrough, said core layer being partly cut off, and a cladding layer disposed in cut regions of ~~the~~ said core layer and on opposite sides of ~~the~~

said core layer, said cut regions ~~having~~ including cut lengths set to predetermined values depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~ plurality of input waveguides;

at least one or plural output waveguides waveguide for outputting said signal lights;
a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~
a predetermined waveguide length differences difference;

an input slab waveguide connecting an input end of said channel waveguide array to said plurality of input waveguides; and

an output slab waveguide connecting an output end of said channel waveguide array to said at least one output waveguides waveguide.

9. (Canceled)

10. (Currently amended) An arrayed waveguide grating, comprising:

a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~
a predetermined waveguide length differences difference;

an input slab waveguide ~~having~~ including an output end connected to an input end of said channel waveguide array;

at least one or plural output waveguides waveguide for outputting signal lights;

an output slab waveguide connecting an output end of said channel waveguide array to said at least one output waveguides waveguide; and

a plurality of input waveguides ~~having respective ends~~ connected to ~~the~~ a surface of an input end of said input slab waveguide,

wherein ~~selected or all of said ends of the~~ central axes of selected input waveguides ~~have respective central positions~~ are displaced along a direction perpendicular to central axes of said input waveguides from corresponding ~~focused~~ focusing positions ~~in a direction perpendicular to central axes of the input waveguides~~ by predetermined values depending on losses to be given to the attenuate said signal lights propagated in through said selected input waveguides to said at least one output waveguide.

11. (Canceled)

12. (Currently amended) An arrayed waveguide grating, comprising:

a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~ a predetermined waveguide length differences difference;

an input slab waveguide ~~having~~ including an output end connected to an input end of said channel waveguide array;

at least one ~~or plural~~ output ~~waveguides~~ waveguide for outputting signal lights;

an output slab waveguide connecting an output end of said channel waveguide array to said at least one output ~~waveguides~~ waveguide; and

a plurality of input waveguides ~~having respective ends~~ connected to ~~the~~ a surface of an input end of said input slab waveguide,

wherein ~~selected or all of~~ central axes of said selected input waveguides are inclined ~~at the interconnected points of the~~ from a perpendicular to said surface at a focusing position to attenuate said signal lights propagated from said selected input waveguides ~~and said input slab waveguide at respective angles depending on losses to be given to the signal lights coupled at said interconnected points~~ to said at least one output waveguide.

13-15. (Canceled)

16. (Currently amended) An arrayed waveguide grating, comprising:

a channel waveguide array ~~having~~ including a plurality of waveguides ~~which are successively, each successive waveguide of said plurality of waveguides being longer with by~~ a predetermined waveguide length differences difference;

an input slab waveguide ~~having~~ including an output end connected to an input end of said channel waveguide array;

at least one ~~or plural~~ output ~~waveguides~~ for outputting signal lights;

an output slab waveguide connecting an output end of said channel waveguide array to said at least one output ~~waveguides~~ waveguide; and

a plurality of input waveguides ~~having respective ends~~ connected to ~~the~~ an input end

of said input slab waveguide.

wherein ~~the~~ lengths ~~between the~~, which extend from ends of ~~the~~ selected input waveguides ~~and to light transmission points of~~ said channel waveguide array, are displaced in ~~the direction of~~ along propagation axes of ~~the~~ said selected input waveguides ~~depending on losses to be given to the~~ from corresponding focusing positions to attenuate said signal lights propagated from said selected input waveguides to said light transmission points of said channel waveguide array ~~to the ends of the input waveguides~~.

17-30. (Canceled)

31. (Currently amended) A waveguide device, comprising:

at least one ~~or plural~~ input ~~waveguides~~ waveguide for inputting signal lights;
a plurality of output waveguides for outputting signal lights; and
a slab waveguide ~~connecting the~~ interposed between said at least one input ~~waveguides to the~~ waveguide and said plurality of output waveguides, said slab waveguide ~~having~~ including a core layer disposed therein for propagating light therethrough from said at least one input ~~waveguides~~ waveguide.

wherein said core layer ~~being~~ is partly cut off in selected ~~or all~~ paths therein, which interconnect said at least one input ~~waveguides~~ waveguide and said plurality of output waveguides, and a cladding layer disposed in cut regions of ~~the~~ said core layer and on opposite sides of ~~the~~ said core layer, said cut regions in ~~the~~ said selected paths ~~having~~ including cut lengths set to predetermined values in ~~the~~ a direction in which said signal lights propagate, depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~ said selected paths.

32. (Currently amended) A waveguide device, comprising:

a plurality of input waveguides for inputting signal lights;
at least one ~~or plural~~ output ~~waveguides~~ waveguide for outputting signal lights; and
a slab waveguide ~~connecting the~~ interposed between said plurality of input

waveguides ~~to the~~ and said at least one output ~~waveguides~~ waveguide, said slab waveguide ~~having~~ including a core layer disposed therein for propagating light therethrough from said plurality of input waveguides to the said at least one output ~~waveguides~~ waveguide.

wherein said core layer ~~being~~ is partly cut off in selected ~~or all~~ paths therein, which interconnect said plurality of input waveguides and said at least one output ~~waveguides~~ waveguide, and a cladding layer disposed in cut regions of the said core layer and on opposite sides of the said core layer, said cut regions in the said selected paths ~~having~~ including cut lengths set to predetermined values in the a direction in which the said signal lights propagate, depending on optical losses of the said signal lights propagated in the said selected paths.

33. (Currently amended) A waveguide device, comprising:

at least one or plural input ~~waveguides~~ waveguide for inputting signal lights;
a slab waveguide having an input end connected to said input waveguides; and
an output waveguide ~~having~~ including a plurality of waveguides ~~connected to an output end of said slab waveguide~~, wherein each of selected ~~or all of the~~ waveguides have of said plurality of waveguides include a core layer disposed therein for propagating light therethrough, said core layer being partly cut off, and a cladding layer disposed in cut regions of the said core layer ~~and on opposite sides of the core layer~~, said cut regions having including cut lengths set to predetermined values depending on optical losses of the said signal lights propagated in the said selected waveguides; and

a slab waveguide interconnecting said at least one input waveguide and said output waveguide including a plurality of waveguides.

34. (Currently amended) A waveguide device, comprising:

an input waveguide ~~having~~ including a plurality of waveguides for inputting signal lights,

wherein each of selected or all of the waveguides have of said plurality of

waveguides include a core layer disposed therein for propagating light therethrough, said core layer being partly cut off, and a cladding layer disposed in cut regions of ~~the~~ said core layer and on opposite sides of the core layer, said cut regions ~~having~~ including cut lengths set to predetermined values depending on optical losses of ~~the~~ said signal lights propagated in ~~the~~ said selected waveguides;

at least one ~~or plural~~ output ~~waveguides~~ waveguide for outputting said signal lights;
and

a slab waveguide interconnecting said input ~~waveguides~~ waveguide and said at least one output ~~waveguides~~ waveguide.

35. (Canceled)

36. (Currently amended) A waveguide device, comprising:

~~a slab waveguide;~~

an output waveguide ~~connected to an output end of said slab waveguide;~~ and

a plurality of input waveguides ~~having respective ends~~ connected to a surface of an input end of ~~said~~ a slab waveguide,

wherein central axes of selected ~~or all of said ends have respective central positions~~ input waveguides are displaced along a direction perpendicular to central axes of said input waveguides from corresponding ~~focused~~ focusing positions ~~in a direction perpendicular to central axes of the input waveguides~~ by predetermined values depending on ~~losses to be given to the~~ attenuate said signal lights propagated ~~in through~~ in said selected input waveguides to said output ~~waveguides~~ waveguide.

37. (Canceled)

38. (Currently amended) A waveguide device, comprising:

at least one ~~or plural~~ output ~~waveguides~~ waveguide for outputting signal lights;

~~a slab waveguide having an output end connected to input ends of said output waveguides; and~~

a plurality of input waveguides ~~having respective ends~~ connected to a surface of an

input end of ~~said a~~ slab waveguide,

wherein ~~selected or all of~~ central axes of ~~said~~ selected input waveguides are inclined ~~at the interconnected points of the~~ from a perpendicular to said surface at a focusing position, corresponding to each of said selected input waveguides and said slab waveguides at respective angles depending on losses to be given, to the attenuate said signal lights ~~coupled at said interconnected points propagated from said selected input waveguides to said at least one waveguide.~~

39. (Canceled)

40. (Currently amended) A waveguide device, comprising:

at least one or plural output waveguides waveguide for outputting signal lights;
~~a slab waveguide having an output end connected to input ends of said output waveguides; and~~

a plurality of input waveguides ~~having respective ends~~ connected to an input end of ~~said a~~ slab waveguide,

wherein ~~selected or all of said ends have waveguide~~ widths set to of selected input waveguides, which are axially aligned with corresponding focusing positions, comprise predetermined values depending on losses to be given to the attenuate said signal lights.

41. (Canceled)

42. (Currently amended) A waveguide device, comprising:

at least one or plural output waveguides waveguide for outputting signal lights;
~~a slab waveguide having an output end connected to input ends of said output waveguides; and~~

a plurality of input waveguides ~~having respective ends~~ connected to an input end of ~~said a~~ slab waveguide,

wherein ~~the lengths between the ends of the output waveguides and said,~~

which extend from ends of selected input waveguides are displaced ~~in the direction of~~ along propagation axes of ~~the output~~ said selected input waveguides ~~depending on losses to be~~ given from corresponding focusing positions to ~~the~~ attenuate said signal lights propagated from said ~~output~~ plurality of input waveguides to ~~the ends of the input waveguides~~ said at least one output waveguide.

43-48. (Canceled)